

ITER Scientist Fellow (Integrated Modelling)

Purpose

The aim of this fellowship is to support the ITER Project and, in particular, the ITER Organization Central Team (IO-CT) through contributions to the ITER Integrated Modelling Programme. This involves constructing workflows using the Integrated Modelling & Analysis Suite (IMAS) and distinct physics models to address high priority modelling issues (core-edge integrated predictive modelling with fuelling and control of power fluxes to PFCs; MHD plasma stability assessments including the effects of fast particles), and extending and improving the IMAS Framework itself. The work involves close collaboration with the IO-CT and with modelling and experimental efforts performed within the ITER Members' fusion community and with the relevant ITPA activities.

Major Activities

- Develops IMAS workflows to support the development and refinement of a holistic Plasma Simulator that can be used to predict ITER behaviour and includes the influence of actuators such as heating and current drive (plus torque input), fuelling systems and ELM control schemes;
- Develops IMAS workflows to assess plasma stability (including the influence of fast particles) and the consequences of plasma instability;
- Contributes to the development of new algorithms and implementations to improve the performance and capabilities of IMAS workflows;
- Validates IMAS workflows against existing experimental data, coordinating dedicated experiments where necessary;
- Contributes to advancing the IMAS Framework and Infrastructure through the extension of modelling capabilities (including the Data Model) and the adaptation to new computing paradigms.

chi china

eu eu

in india

ja japan

ko korea

ru russia

us usa

Qualifications and Experience

- **Education/ Know-How:**
 - Extensive experience in the development and implementation of modelling and simulation software
- **Technical experience:**
 - Deep knowledge of modelling plasma behaviour across a range of domains (core, pedestal, edge) as evidenced, eg, by many publications in recognized scientific journals
 - Knowledge of programming languages and software tools used in integrated plasma modelling
- **Social skills:**
 - Ability to communicate effectively;
 - Ability to work effectively in a multi-cultural environment;
 - Ability to work within a team and to promote team work.
- **Language requirements:**
 - Fluent in English (written and spoken).
- **Computer and IT skills:**
 - Expertise in numerical techniques for the implementation of sophisticated plasma simulation and analysis tools is essential.